



# Technical Report Series on the Biosystem-Air Atmosphere Study (BOREAS)

*Editor*

**106**

## Topographic Map Data from the BOREAS Project

*and J. Nickeson*

Aeronautics and  
Administration

**Space Flight Center**  
Maryland 20771

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**Technical Report Series on the  
Boreal Ecosystem-Atmosphere Study (BOREAS)**

*Forrest G. Hall, Editor*

**Volume 106**

**Vector Topographic Map Data  
over the BOREAS NSA and SSA  
in SIF Format**

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# **Vector Topographic Map Data over the BOREAS NSA and SSA in SIF Format**

David Knapp, Jaime Nickeson

## **Summary**

This data set contains vector contours and other features of individual topographic map sheets from the NTS. The map sheet files were received in SIF and cover the BOREAS NSA and SSA at scales of 1:50,000 and 1:250,000. The individual files are stored in compressed Unix tar archives.

## **Table of Contents**

- 1) Data Set Overview
- 2) Investigator(s)
- 3) Theory of Measurements
- 4) Equipment
- 5) Data Acquisition Methods
- 6) Observations
- 7) Data Description
- 8) Data Organization
- 9) Data Manipulations
- 10) Errors
- 11) Notes
- 12) Application of the Data Set
- 13) Future Modifications and Plans
- 14) Software
- 15) Data Access
- 16) Output Products and Availability
- 17) References
- 18) Glossary of Terms
- 19) List of Acronyms
- 20) Document Information

## **1. Data Set Overview**

### **1.1 Data Set Identification**

Vector Topographic Map Data over the BOREAS NSA and SSA in SIF Format

### **1.2 Data Set Introduction**

This data set was acquired by BOREal Ecosystem-Atmosphere Study (BOREAS) Information System (BORIS) staff from Geomatics Canada. The data exist as single or pairs of files for individual map sheets from the National Topographic Series (NTS). The data in the files were received in Standard Interchange Format (SIF).

### **1.3 Objective/Purpose**

These data are provided as part of the BOREAS Staff Science Geographic Information System (GIS) Data Collection Program, which included the collection of pertinent map data, in both hardcopy and digital form. The purpose of this data-gathering effort was to provide the user with elevation contours of the Modeling Sub-Areas (MSAs). These data could be used to create Digital Elevation Models (DEMs) and to construct other topographic map features of the MSAs.

## **1.4 Summary of Parameters**

There are feature codes located in the summary statistics (.ss) or description (.map) file for each map. These vary by map but contain, in addition to codes for elevation contours, codes for those map elements common to most topographic maps, such as water bodies, watercourses, trails, roads, and point information. For map elements corresponding to the contour feature codes, the elevation of the contour (meters above mean sea level) and North American Datum of 1983 (NAD83) Universal Transverse Mercator (UTM) coordinate pairs (easting and northing) along the contour are available.

## **1.5 Discussion**

These data were given to BOREAS staff in various versions of SIF. Source code provided by the Hydrology (HYD)-08 science team was modified to read the contour data from various files. This code (undocumented) is provided as part of this data set. The input data were understood to be in a standard format, but they were not standard in terms of the software's ability to consistently read all of the data files. BORIS staff has not been able to obtain a format document or acquire commercial software for reading SIF, though such software does exist. BORIS staff used the modified HYD-08 source code to reformat the data into ARC GENERATE line format, which is strings of x, y coordinate pairs, with each string (line) being associated with an elevation value. For more detailed information regarding the ARC GENERATE format and data set, refer to the documentation for the BOREAS Vector Contours for the NSA and SSA in ARC/INFO Generate Format data.

## **1.6 Related Data Sets**

BOREAS Regional DEM in Raster Format and AEAC Projection

BOREAS DEM Data over the NSA-MSA and SSA-MSA in the AEAC Projection

BOREAS HYD-08 DEM Data over the NSA-MSA and SSA-MSA in the UTM Projection

# **2. Investigator(s)**

## **2.1 Investigator(s) Name and Title**

BOREAS Staff Science

## **2.2 Title of Investigation**

BOREAS Staff Science GIS Data Collection Program

## **2.3 Contact Information**

### **Contact 1:**

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### **Contact 2:**

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NASA GSFC  
Code 923  
Greenbelt, MD 20771  
(301) 286-3373  
Jaime.Nickeson@gsfc.nasa.gov

### 3. Theory of Measurements

Not applicable.

### 4. Equipment

#### 4.1 Sensor/Instrument Description

Unknown.

#### 4.1.1 Collection Environment

Unknown.

#### 4.1.2 Source/Platform

Unknown.

#### 4.1.3 Source/Platform Mission Objectives

The NTS map sheets were acquired in analog form to provide users and staff with needed spatial and topographic information. The data also were acquired in digital form to help in the derivation of a DEM of the study areas.

#### 4.1.4 Key Variables

The following sample, but not exhaustive, list of the map features contained in the data is from a summary statistics (.ss) file, in which one would also find feature codes for each feature listed:

```
FEATURE NAME
*****
FOREST MONO
BOUNDARY 2ND CLASS DLS
BOUNDARY 4TH CLASS
BOUNDARY 6TH CLASS
BOUNDARY 6TH CLASS UNSURVEYED
BOUNDARY 7TH CLASS SECTION
BOUNDARY 8TH CLASS SURVEYED
SPOT ELEVATION POINT
ROAD-D
ROAD-E
ROAD-F
ROAD-G
TRAIL
BRIDGE
BARRIER/GATE-OTHER POINT
BLDG-OTHER POINT
BLDG-BARN/MACHINERY SHED POINT
BLDG-CHURCH POINT
BLDG-SCHOOL POINT
TOWER-FIRE <30M POINT
BLDG-WARDEN/RANGER STA AREA
WATERCOURSE-DEFINITE
WETLAND AREA
WATERBODY-DEFINITE AREA
WATERBODY-INDEFINITE AREA
ESKER
PIT AREA
```

VEGETATION-WOODED AREA  
CROSS POINT  
TRANSMISSION LINE-POWER  
CEMETERY AREA  
MOBILE HOME PARK AREA  
PICNIC SITE POINT  
STOCKYARD AREA  
DAM  
RESERVOIR-OPEN DUGOUT POINT  
CONTOUR OTH COL INTMED DEF  
CONTOUR OTH COL NDX DEF  
TEXT

#### **4.1.5 Principles of Operation**

Unknown.

#### **4.1.6 Sensor/Instrument Measurement Geometry**

Unknown.

#### **4.1.7 Manufacturer of Sensor/Instrument**

Unknown.

### **4.2 Calibration**

#### **4.2.1 Specifications**

Unknown.

##### **4.2.1.1 Tolerance**

Unknown.

#### **4.2.2 Frequency of Calibration**

Unknown.

#### **4.2.3 Other Calibration Information**

None.

## **5. Data Acquisition Methods**

The data were acquired from Geomatics Canada's National Topographical Data Base through the Canadian Centre for Remote Sensing (CCRS). The data were available in SIF only.

## **6. Observations**

### **6.1 Data Notes**

None.

### **6.2 Field Notes**

None.

## 7. Data Description

### 7.1 Spatial Characteristics

The various data files at each scale cover parts of the BOREAS NSA and SSA. Each file represents one NTS map at a scale of either 1:50,000 or 1:250,000.

#### 7.1.1 Spatial Coverage

The two areas that are covered by these vector files include an area west of Thompson, Manitoba (NSA), and an area north of Prince Albert, Saskatchewan (SSA). Each of the 1:50,000-scale maps covers an area roughly 31.5 km x 27.8 km. The 1:250,000-scale maps cover 2 degrees of longitude by 1 degree of latitude. The following NTS map sheets are included:

##### 1:50,000-scale maps of the NSA:

Number	Name
-----	-----
63 O/10	Wuskwatim Lake
63 O/15	Nelson House
63 O/16	Noble Lake
63 O/09	Ospwagan Lake
63 P/14	Begg Lake
64 A/03	Orr Lake
64 A/04	Strong Lake
64 B/01	Harding Lake
64 B/02	Leftrook Lake

##### 1:50,000-scale maps of the SSA:

Number	Name
-----	-----
73 G/09	Halkett Lake
73 G/16	Waskesiu Lake
73 H/09	Torch River
73 H/10	Bedard Creek
73 H/11	Birchbark Lake
73 H/12	Emma Lake
73 H/13	Bittern Lake
73 H/14	Candle Lake
73 H/15	White Gull Creek
73 H/16	Falling Horse Creek
73 I/01	Scarth River
73 I/02	Summit Lake
73 I/03	Whiteswan Lake
73 I/04	Montreal Lake South
73 J/01	Crean Lake

##### 1:250,000-scale map of the NSA:

Number	Name
-----	-----
64 C	Granville Lake

##### 1:250,000-scale map of the SSA:

Number	Name
-----	-----
73 H	Prince Albert

The following bounding coordinates are provided to give a general idea of the area within which most of these map sheets fall; however, the maps do not cover all of the area described.

The North American Datum of 1983 (NAD83) corner coordinates of the SSA are:

	Latitude -----	Longitude -----
Northwest	54.321 N	106.228 W
Northeast	54.225 N	104.237 W
Southwest	53.515 N	106.321 W
Southeast	53.420 N	104.368 W

The NAD83 corner coordinates of the NSA are:

	Latitude -----	Longitude -----
Northwest	56.249 N	98.825 W
Northeast	56.083 N	97.234 W
Southwest	55.542 N	99.045 W
Southeast	55.379 N	97.489 W

### **7.1.2 Spatial Coverage Map**

Not available.

### **7.1.3 Spatial Resolution**

The original contour interval of the data is 25 ft (7.62 m) for the 1:50,000-scale maps and 100 ft (30.48 m) for the 1:250,000-scale maps.

### **7.1.4 Projection**

The data are in their original UTM projection. The NSA data are in UTM zone 14, and the SSA data are in UTM zone 13.

### **7.1.5 Grid Description**

Not applicable.

## **7.2 Temporal Characteristics**

### **7.2.1 Temporal Coverage**

Information regarding when the original source data were collected is not available. Most of the maps from which these contours were digitized were made in the 1970s or 1980s.

### **7.2.2 Temporal Coverage Map**

Not available.

### **7.2.3 Temporal Resolution**

Not applicable.

## **7.3 Data Characteristics**

### **7.3.1 Parameter/Variable**

The available information for each map is generally (but not always) contained in two files. Vector position data are contained in one of three file types (with the extensions .sif, .k2a, or .k8a) and map statistics/descriptions are contained in one of two file types (with the extensions .ss or .map). Although the features contained in each map are fairly consistent, the features and statistics do vary

with location and map complexity.

The following sample ss file, 73g09.ss, lists the feature codes and features of the NTS 73g09 map sheet. Note that although feature codes 9231 and 9234 correspond to the intermediate (CONTOUR OTH COL INTMED DEF) and index (CONTOUR OTH COL NDX DEF) elevation contours in this map sheet, different feature code numbers represent the same features in other map sheets. The information available to BORIS personnel about the features is described in the following sections.

Statistics listing for SIF ASCII file 73g09.sif using the feature code tables  
/usr/mgeadmin/tables/kork\_feat.tbl:

FEATURE CODE	FEATURE NAME	ASC	LST	CUR	SYM	TXT
*****	*****	***	***	***	***	***
261	FOREST MONO	3	0	0	0	12
1230	BOUNDARY 2ND CLASS DLS	3	42	0	0	0
1260	BOUNDARY 4TH CLASS	3	41	0	0	4
1322	BOUNDARY 6TH CLASS	1	38	0	0	0
1323	BOUNDARY 6TH CLASS UNSURVEYED	1	2	0	0	0
1371	BOUNDARY 7TH CLASS SECTION	1	76	0	0	0
1381	BOUNDARY 8TH CLASS SURVEYED	1	4	0	0	0
1440	SPOT ELEVATION POINT	8	0	0	14	15
2050	ROAD-D	2	22	0	0	0
2060	ROAD-E	1	61	0	0	0
2070	ROAD-F	4	61	0	0	0
2080	ROAD-G	1	9	0	0	0
2090	TRAIL	2	22	0	0	0
2190	BRIDGE	3	8	0	0	0
2250	BARRIER/GATE-OTHER POINT	2	0	0	5	0
4010	BLDG-OTHER POINT	33	0	0	131	0
4050	BLDG-BARN/MACHINERY SHED POIN	31	0	0	71	0
4070	BLDG-CHURCH POINT	2	0	0	2	0
4160	BLDG-SCHOOL POINT	1	0	0	1	0
4317	TOWER-FIRE <30M POINT	1	0	0	3	0
4361	BLDG-WARDEN/RANGER STA AREA	1	1	0	0	0
5040	WATERCOURSE-DEFINITE	51	667	0	0	0
5220	WETLAND AREA	71	790	0	0	640
5790	WATERBODY-DEFINITE AREA	4	411	0	0	0
5793	WATERBODY-INDEFINITE AREA	5	597	0	0	0
6160	ESKER	1	1	0	0	0
6240	PIT AREA	1	1	0	0	1
6330	VEGETATION-WOODED AREA	107	1380	0	0	223
7107	CROSS POINT	1	0	0	1	0
7390	TRANSMISSION LINE-POWER	1	5	0	0	0
7460	CEMETERY AREA	1	1	0	0	1
7550	MOBILE HOME PARK AREA	1	1	0	0	1
7640	PICNIC SITE POINT	1	0	0	1	0
7782	STOCKYARD AREA	1	2	0	0	0
8130	DAM	1	4	0	0	0
8430	RESERVOIR-OPEN DUGOUT POINT	1	0	0	2	0
9231	CONTOUR OTH COL INTMED DEF	7	1363	0	0	0
9234	CONTOUR OTH COL NDX DEF	6	323	0	0	0
9901	TEXT	6	0	0	0	497
		*****	*****	****	*****	*****
		372	5933	0	231	1394

TOTAL of LST, CUR, SYM, and TXT: 7558

The best but absolutely unconfirmed guess by BORIS staff about the columns in the .ss files is that they represent areal (ASC), linear (LST), no guess (CURR), symbol (SYM), and text (TXT) record types in the corresponding vector data files. The best but absolutely unconfirmed guess by BORIS staff about the numbers in the columns is that they represent the number of those types of records/features in the corresponding vector data file.

### 7.3.2 Variable Description/Definition

The only features about which BORIS personnel have any substantial information are the elevation contours. Note that although feature codes 9231 and 9234 correspond to the intermediate (CONTOUR OTH COL INTMED DEF) and index (CONTOUR OTH COL NDX DEF) elevation contours in this map sheet, different feature code numbers represent the same features in other map sheets.

- CONTOUR OTH COL INTMED DEF: An elevation above mean sea level (the vertical distance between a plane at mean sea level and a parallel plane intersecting this point) and series of geographic coordinate pairs that define the points along the given intermediate elevation contour.
- CONTOUR OTH COL NDX DEF: An elevation above mean sea level (the vertical distance between a plane at mean sea level and a parallel plane intersecting this point) and series of geographic coordinate pairs that define the points along the given index elevation contour.

Note that depending on the map sheet, the geographic coordinates are given in either the NAD27 or the NAD83 datum, where:

- NAD27 UTM coordinate pairs are the NAD27-based UTM Easting and Northing coordinate pairs that define the geographic locations over which the given contour exists.
- NAD83 UTM coordinate pairs are the NAD83-based UTM easting and northing coordinate pairs that define the geographic locations over which the given contour exists.

### 7.3.3 Unit of Measurement

The measurement units known by BORIS personnel are:

- CONTOUR OTH COL INTMED DEF: meters above mean sea level
- CONTOUR OTH COL NDX DEF: meters above mean sea level.
- NAD27 UTM coordinate pairs: NAD27 UTM meters.
- NAD83 UTM coordinate pairs: NAD83 UTM meters.

### 7.3.4 Data Source

Geomatics Canada  
Natural Resources Canada  
615 Booth St.  
Ottawa, Ontario K1A 0E9 CANADA

### 7.3.5 Data Range

Ranges given below are for the 1:50,000-scale maps; the 1:250,000-scale maps were not evaluated for data range.

NSA Elevation  
(meters)

-----  
Minimum: 206  
Maximum: 381

SSA Elevation  
(meters)

-----  
Minimum: 335  
Maximum: 747

## 7.4 Sample Data Record

Not applicable.

# 8. Data Organization

## 8.1 Data Granularity

The smallest amount of data obtainable is all of the 1:50,000-scale data and all of the 1:250,000-scale data.

## 8.2 Data Format(s)

Two tar files are associated with this data set: one that contains the 1:50,000 map files and one that contains the 1:250,000 map files. Each of the map files has been Unix compressed; to expand a given map file, use the Unix uncompress command. The NSA map file names begin with 73, and the SSA map file names begin with 63 or 64. The individual map files contained in the 1:50,000-scale tar file are:

63o09.sif.Z	63p14.map.Z	64b02.map.Z	73h10.k8a.Z	73h14.map.Z	73i03.map.Z
63o09.ss.Z	63p14.sif.Z	64b02.sif.Z	73h10.ss.Z	73h14.sif.Z	73i03.sif.Z
63o10.map.Z	64a03.map.Z	73g09.sif.Z	73h11.sif.Z	73h15.sif.Z	73i04.map.Z
63o10.sif.Z	64a03.sif.Z	73g09.ss.Z	73h11.ss.Z	73h16.sif.Z	73i04.sif.Z
63o15.sif.Z	64a04.map.Z	73g16.sif.Z	73h12.sif.Z	73i01.map.Z	73j01.map.Z
63o15.ss.Z	64a04.sif.Z	73g16.ss.Z	73h12.ss.Z	73i01.sif.Z	73j01.sif.Z
63o16.sif.Z	64b01.map.Z	73h09.k8a.Z	73h13.map.Z	73i02.map.Z	
63o16.ss.Z	64b01.sif.Z	73h09.ss.Z	73h13.sif.Z	73i02.sif.Z	

The individual map files in the 1:250,000-scale tar file are:

64c.k2a.Z 64c.ss.Z 73h.k2a.Z 73h.map.Z 73h.sif.Z 73h.ss.Z

The available information for each map is generally (but not always) contained in two files. The file names correspond to the NTS map identifiers (i.e., 73I09 or 73I for the 1:50,000 and 1:250,000 scales, respectively). Vector position data have one of three file extensions, .sif, .k2a, or .k8a, and map statistics/ descriptions have one of two file extensions, .ss or .map. Although the features contained in each map are fairly consistent, the features and statistics do vary with location and map complexity. The following are the file extensions that can be found as part of this data set, although little is known about these designations:

- .sif - standard interchange format  
ASCII data
- .k2a - KORK feature codes  
NAD27 datum  
ASCII data, meaning SIF data
- .k8a - KORK feature codes  
NAD83 datum  
ASCII data, meaning SIF data
- .ss - SIF statistics, which is an ASCII text file containing  
a feature code list for the corresponding SIF data file
- .map - map description file

BORIS staff was not able to obtain a format document or acquire commercial software for reading SIF. Although vendors such as Environmental Systems Research Institute, Inc. (ESRI) (developer of ARC/INFO) support this format, BORIS staff was not willing to absorb the costs associated with adding the necessary package to our existing license. Source code provided by the HYD-08 science

team was modified to read the contour data from various files. This source code is provided as part of this data set as the following files: sifread.c and gis2read.c. These two files are included in each of the tar files in addition to the files listed above. It is not known whether these files will work with the 1:250,000-scale files because we did not work with the contour data at this scale. Note also that in the 1:250,000 tar file, the map 73h is duplicated in two different formats. Please note that BORIS staff found inconsistencies in the file formats even within a given file's type or extension.

## **9. Data Manipulations**

### **9.1 Formulae**

None.

### **9.2 Data Processing Sequence**

#### **9.2.1 Processing Steps**

None.

#### **9.2.2 Processing Changes**

None.

### **9.3 Calculations**

#### **9.3.1 Special Corrections/Adjustments**

None.

#### **9.3.2 Calculated Variables**

None.

### **9.4 Graphs and Plots**

None.

## **10. Errors**

### **10.1 Sources of Error**

One source of error is the digitizing process used to create the contours from the map sheets. It is not known whether the maps were hand digitized or if a more automated scanning process was used to digitize the contours.

### **10.2 Quality Assessment**

#### **10.2.1 Data Validation by Source**

Unknown.

#### **10.2.2 Confidence Level/Accuracy Judgment**

Unknown.

#### **10.2.3 Measurement Error for Parameters**

Unknown.

#### **10.2.4 Additional Quality Assessments**

None.

### **10.2.5 Data Verification by Data Center**

Quantitative estimates were not made for any of the features in the files. Visual assessment of the contour data showed the spacing to be appropriate for the 1:50,000 scale (i.e., there was no noticeable jaggedness or discontinuities along the contours). The 1:250,000-scale data were not checked. After extracting the data into the ARC/INFO Generate files, BORIS staff plotted the contour data and visually reviewed the data with the 1:50,000 hardcopy maps. No anomalies or errors in the contour data were detected in this review.

## **11. Notes**

### **11.1 Limitations of the Data**

Because the data have a 25-ft contour interval, variations in the terrain that are smaller than 25 ft may not be detectable. The user should not expect to see terrain detail such as small berms or other minor topographic relief. Even less topographic detail (variation under 100 ft) is available from the 1:250,000-scale maps with their 100-ft contour interval.

### **11.2 Known Problems with the Data**

The NSA maps from which these Global Positioning System (GPS) data were derived were found to be in disagreement with differentially corrected GPS coordinates gathered by BOREAS by about 150 m. The error did not appear to be systematic. The SSA maps have a higher degree of accuracy (about 45 m) when compared to GPS.

### **11.3 Usage Guidance**

If these data are going to be used to create a DEM, the various vector files should be edgematched to create seamless contours that do not have discontinuities at the map boundaries.

Before uncompressing the tar files on CD-ROM, be sure that you have enough disk space to hold the uncompressed data files.

### **11.4 Other Relevant Information**

None.

## **12. Application of the Data Set**

This data set can be used to create a gridded DEM of the area of interest. It could also be used for graphical purposes, as an overlay along with other vector layers.

## **13. Future Modifications and Plans**

None.

## **14. Software**

### **14.1 Software Description**

The software to read the SIF data was originally produced by an unknown source. The BOREAS HYD-08 team provided source code that could read some of the SIF files. The software reads the input file and extracts certain features based on feature codes that are supplied by the user. The software is written in C and is operational on Unix workstations at GSFC.

### **14.2 Software Access**

The software is included on the data tape.

## **15. Data Access**

The vector topographic map data are available from the Earth Observing System Data and Information System (EOSDIS) Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC).

### **15.1 Contact Information**

For BOREAS data and documentation please contact:

ORNL DAAC User Services  
Oak Ridge National Laboratory  
P.O. Box 2008 MS-6407  
Oak Ridge, TN 37831-6407  
Phone: (423) 241-3952  
Fax: (423) 574-4665  
E-mail: [ornldaac@ornl.gov](mailto:ornldaac@ornl.gov) or [ornl@eos.nasa.gov](mailto:ornl@eos.nasa.gov)

### **15.2 Data Center Identification**

Earth Observing System Data and Information System (EOSDIS) Oak Ridge National Laboratory (ORNL) Distributed Active Archive Center (DAAC) for Biogeochemical Dynamics  
<http://www-eosdis.ornl.gov/>.

### **15.3 Procedures for Obtaining Data**

Users may obtain data directly through the ORNL DAAC online search and order system [<http://www-eosdis.ornl.gov/>] and the anonymous FTP site [<ftp://www-eosdis.ornl.gov/data/>] or by contacting User Services by electronic mail, telephone, fax, letter, or personal visit using the contact information in Section 15.1.

### **15.4 Data Center Status/Plans**

The ORNL DAAC is the primary source for BOREAS field measurement, image, GIS, and hardcopy data products. The BOREAS CD-ROM and data referenced or listed in inventories on the CD-ROM are available from the ORNL DAAC.

## **16. Output Products and Availability**

### **16.1 Tape Products**

The vector contour data can be made available on 8-mm, DAT, or 9-track tapes at 6250 or 1600 bpi.

### **16.2 Film Products**

None.

### **16.3 Other Products**

These data are available on the BOREAS CD-ROM series.

## **17. References**

### **17.1 Platform/Sensor/Instrument/Data Processing Documentation**

None.

### **17.2 Journal Articles and Study Reports**

Newcomer, J., D. Landis, S. Conrad, S. Curd, K. Huemmrich, D. Knapp, A. Morrell, J. Nickeson, A. Papagno, D. Rinker, R. Strub, T. Twine, F. Hall, and P. Sellers, eds. 2000. Collected Data of The Boreal Ecosystem-Atmosphere Study. NASA. CD-ROM.

Sellers, P. and F. Hall. 1994. Boreal Ecosystem-Atmosphere Study: Experiment Plan. Version 1994-3.0, NASA BOREAS Report (EXPLAN 94).

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Topog User Guide (Version 5.0), 1994. Division of Water Resources, CSIRO. Canberra, Australia.

### **17.3 Archive/DBMS Usage Documentation**

None.

## **18. Glossary of Terms**

None.

## 19. List of Acronyms

ASCII	- American Standard Code for Information Interchange
BOREAS	- BOReal Ecosystem-Atmosphere Study
BORIS	- BOREAS Information System
BPI	- Bytes Per Inch
CCRS	- Canadian Centre for Remote Sensing
CD-ROM	- Compact Disk-Read-Only Memory
DAAC	- Distributed Active Archive Center
DAT	- Digital Audio Tape
DEM	- Digital Elevation Model
EOS	- Earth Observing System
EOSDIS	- EOS Data and Information System
GIS	- Geographic Information System
GMT	- Greenwich Mean Time
GSFC	- Goddard Space Flight Center
MSA	- Modeling Sub-Area
NAD27	- North American Datum of 1927
NAD83	- North American Datum of 1983
NASA	- National Aeronautics and Space Administration
NSA	- Northern Study Area
NTS	- National Topographic Series
ORNL	- Oak Ridge National Laboratory
PANP	- Prince Albert National Park
SIF	- Standard Interchange Format
SSA	- Southern Study Area
URL	- Uniform Resource Locator
UTM	- Universal Transverse Mercator
WWW	- World Wide Web

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